

REMARKS

This Amendment is filed in response to the Office Action mailed on May 5, 2008. All objections and rejections are respectfully traversed.

Claims 1- 38 are in this case.

Request for Examiner Interview

Applicant respectfully requests a telephonic interview with the Examiner after the Examiner has had an opportunity to consider this Amendment, but before the issuance of the next Office Action. The Applicant may be reached at 617-951-2500.

Claim Rejections – 35 USC §101

At paragraph 4 of the Office Action, claims 1, 28, 29, 30, and 36 were rejected under 35 U.S.C. § 101, as being directed to non-statutory subject matter.

Representative claim 1 currently recites a first server and a second server. The first server is hardware executing the cluster connection manager. As the claim recites hardware for executing the cluster connection manager, the claim should be allowable over the cited art. Furthermore, claim 28 recites partner storage systems that are hardware executing cluster connection managers. Accordingly, Applicant believes claims 1 and 28 are allowable over the §101 rejection.

Applicant respectfully urges that representative claim 29 complies with all requirements of MPEP 2106 IV (page 2100-10 of the Eighth Edition of the MPEP Incorporating Revision 2). In particular, Claim 29 is to a computer readable medium, for example a disk, etc. The disk contains the computer program, and the computer program executes the novel steps set out in claim 29. Accordingly, Applicant respectfully urges that claim 29 complies with all requirements of 35 U.S.C. § 101, and with the requirements of

MPEP 2106 IV. Furthermore, the program instructions stored on the computer readable medium are executed by a processor. A processor is a form of hardware, and hardware is statutorily accepted under §101. Accordingly, claim 29, 30, and 36 are believed to be allowable over the §101 rejection.

Claim Rejections – 35 USC §102

At paragraph 8 and 17 of the Office Action, claims 1-2, 4, 6-12, 25-26, 28, 31, and 35-38 were rejected under 35 U.S.C. §102 as being anticipated by Sutherland et al. US Patent Application Publication No. 2002/0114341, hereinafter Sutherland.

The present invention, as set forth in the representative claim 1 comprises:

1. A storage system for use in a storage system cluster, the storage system comprising:

 a first server and a second server, wherein the second server is a cluster partner to the first server; and

 a storage operating system operating on the first server, the storage operating system including a *cluster connection manager configured to create, destroy, and maintain one or more communication sessions with the cluster partner, the cluster connection manager operatively interconnected with a set of cluster connection manager clients, where each cluster connection manager client is a process executing on the storage system, and wherein the cluster connection manager is further configured to create, destroy, and maintain a virtual interface connections between a cluster connection manager client on the first server with a cluster connection manager client on the second server to form a peer process between the cluster connection manager clients.*

Sutherland discloses a system and method for a peer-to-peer network that includes a storage coordinator that *centrally* manages distributed resources in accordance with system policies administered through a *central* administrative console. A peer-to-peer storage network is made up of two or more storage nodes that wish to communicate with one another. The communications between the nodes are managed using a storage coordina-

tor node. Although there may be more than one storage coordinator in a peer-to-peer storage network, the storage coordinator is itself an *additional node* with the peer-to-peer storage network (that is, each storage coordinator is a different node than each of the storage nodes in the peer-to-peer storage network). In Sutherland, each storage coordinator node is responsible for cataloging each of the storage nodes that are available in the peer-to-peer storage network and the resources available on each of the respective storage nodes. Furthermore, when a storage node wishes to access/communicate with another storage node on the peer-to-peer storage network, the requesting storage node must register/authenticate itself by first accessing the storage coordinator node. The storage coordinator node then assesses whether the communication can be made and sends its own access request to the other storage node. Therefore, all communication requests between storage nodes are sent through the storage coordinator node prior to accessing each other's storage resources.

Applicant respectfully urges that Sutherland does not disclose Applicant's claimed novel *a cluster connection manager configured to create, destroy, and maintain one or more communication sessions with the cluster partner, the cluster connection manager operatively interconnected with a set of cluster connection manager clients, where each cluster connection manager client is a process executing on the storage system, and wherein the cluster connection manager is further configured to create, destroy, and maintain a virtual interface connections between a cluster connection manager client on the first server with a cluster connection manager client on the second server to form a peer process between the cluster connection manager clients*. Applicant's claimed invention is directed to a storage operation system/node which includes a cluster connection manager. The cluster connection manager is located and executes *within each storage system/node*. This cluster connection manager is utilized to open, destroy and maintain communications with a cluster peer process (e.g. a failover monitor that implements various failover features) through use of virtual interface connections. Furthermore, the cluster connection manager is configured to establish and maintain peer-

to-peer connections between its storage node and cluster partner storage node (which also has its own cluster connection manager).

Sutherland does not disclose Applicant's *cluster connection manager* that is *configured to create, destroy, and maintain a virtual interface connections between a cluster connection manager client on the first server with a cluster connection manager client on the second server to form a peer process between the cluster connection manager clients*. That is, Sutherland does not disclose using a cluster connection manager which is part of a storage operating system to create, destroy, or maintain a virtual interface connection between the first server and a second server (cluster partner), which also has its own cluster connection manager. In Sutherland, (See Fig.6), the storage coordinator is described as an *additional centralized node* in a peer-to-peer storage network (i.e., the storage nodes and the storage coordinator nodes are separate nodes).

Applicant respectfully urges that the Sutherland patent is legally precluded from anticipating the claimed invention under 35 U.S.C §102(e) because of the absence from Sutherland of Applicant's novel *a cluster connection manager configured to create, destroy, and maintain one or more communication sessions with the cluster partner, the cluster connection manager operatively interconnected with a set of cluster connection manager clients, where each cluster connection manager client is a process executing on the storage system, and wherein the cluster connection manger is further configured to create, destroy, and maintain a virtual interface connections between a cluster connection manager client on the first server with a cluster connection manager client on the second server to form a peer process between the cluster connection manager clients*.

Claim Rejections –35 USC § 103

At paragraph 9 and 25 of the Office Action, claims 5, 13-19, 25-26 and 28-29 were rejected under 35 U.S.C. §103 as being unpatentable over Sutherland in view of Meyer et al., U.S. Patent No. 7,203,730, hereinafter Meyer.

The present invention, as set forth in the representative claim 14 comprises:

14. A method for initiating a peer-to-peer communication session, comprising:

 creating, using a cluster connection manager executing on a first server, an initial connection with a cluster partner on a second server;

 exchanging a set of peer connection information;

passing a set of cluster connection manager client information to the cluster partner, wherein the set of cluster connection manager client information includes at least one virtual interface and any memory requirements for each cluster manager client;

 creating a set of appropriate communication ports using the set of cluster connection manager client information;

 alerting the cluster partner of a ready status; and

 alerting a set of cluster connection manager clients that the cluster partner is in a ready state.

Meyer discloses a SCSI device manager which manages a SCSI device. The SCSI device manager is responsible for determining the initial state of the device when it is presented to the manager by a discovery manager. Furthermore, Meyer alerts any clients who wish to be informed when the SCSI devices come and go out of the system thereby informing the clients of the readiness status of the device.

Applicant respectfully urges that Sutherland and Meyer, taken alone or in combination, do not teach or suggest Applicant's claimed novel *passing a set of cluster connection manager client information to the cluster partner, wherein the set of cluster connection manager client information includes at least one virtual interface and any memory requirements for each cluster manager client*. As noted above, Applicant's claimed invention is directed to a storage operation system/node which includes a cluster connection manager. The cluster connection manager is located and executes *within* each

storage system/node. This cluster connection manager is utilized to open, destroy and maintain virtual interface connections with a cluster peer process.

Neither Meyer, nor Sutherland disclose Applicant's *set of cluster connection manager client information includes at least one virtual interface and any memory requirements for each cluster manager client* as both are silent to the concept of virtual interfaces.

Accordingly, Applicant respectfully urges that Sutherland and Meyer, either taken singly or in combination, are legally insufficient to render the presently claimed invention obvious under 35 U.S.C 103(a) because of the absence in each of the cited patents of Applicant's claimed novel *passing a set of cluster connection manager client information to the cluster partner, wherein the set of cluster connection manager client information includes at least one virtual interface and any memory requirements for each cluster manager client*.

At paragraph 11 and 27 of the Office Action, claims 22 and 30, 32-34 were rejected under 35 U.S.C. §103 as being unpatentable over Sutherland, in view of Pinto, US Patent No. 7,099,337, hereinafter Pinto.

The present invention, as set forth in representative claim 22, comprise in part:

22. A method for terminating a peer-to-peer communication session, comprising:

alerting, using a cluster connection manager executing on a storage system, a set of clients of an impending termination of the communication session;

closing, by the clients, a set of communication ports associated with the communication session, wherein the set of communication ports comprise a set of virtual interface connections; and

performing an initialization of a peer-to-peer communication session procedure.

Pinto discloses a host node to implement redirection for Class Managers that do not reside on the host node in order to process incoming data messages accordingly in a switched fabric for scalable solutions.

Applicant respectfully urges that Sutherland and Pinto, taken alone or in combination, do not teach or suggest Applicant's claimed novel *closing, by the clients, a set of communication ports associated with the communication session, wherein the set of communication ports comprise a set of virtual interface connections.*

There is no disclosure in either Sutherland or Pinto of virtual interfaces.

Applicant respectfully urges that Sutherland and Pinto, either taken singly or in combination, are legally insufficient to render the presently claimed invention obvious under 35 U.S.C 103(a) because of the absence in each of the cited patents of Applicant's claimed novel *closing, by the clients, a set of communication ports associated with the communication session, wherein the set of communication ports comprise a set of virtual interface connections.*

At paragraph 10 of the Office Action, claims 20-21 were rejected under 35 U.S.C. §103 as being unpatentable over Sutherland, in view of Meyer, and Craddock et al., US Patent Application Publication No. 2003/0061296.

At paragraph 12 of the Office Action, claims 23-24 were rejected under 35 U.S.C. §103 as being unpatentable over Sutherland, in view of Pinto, and Gronke, US Patent Application Publication No. 2002/0071386.

At paragraphs 13-14 of the Office Action, claims 3, and 27 were rejected under 35 U.S.C. §103 as being unpatentable over Sutherland, in view of Chu et al., US Patent Application Publication No. 2004/0019821.

Applicant respectfully notes that claims 3, 20, 21, 23, 24, and 27 are dependent claims that depend from independent claims believed to be in condition for allowance.

Accordingly, claims 3, 20, 21, 23, 24, and 27 are believed to be in condition for allowance.

All independent claims are believed to be in condition for allowance.

All dependent claims are believed to be dependent from allowable independent claims, and therefore in condition for allowance.

Favorable action is respectfully solicited.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

/Shannen C. Delaney/

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